

AMENDMENTS TO THE CLAIMS

¹
~~11~~ (Currently Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first and second preformed, pneumatically actuated pump stations, more than two preformed fluid flow paths, and more than two preformed, pneumatically actuated valves in the fluid flow paths, ~~the system being configured to place~~ a first pump station in selective communication with ~~any~~ at least two fluid flow paths and a second pump station in selective communication with ~~any~~ at least the same two fluid flow paths,

a control program, and

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to the control program to direct fluid flow through any selected pump station in either a forward direction between two valves, or a reverse direction between two valves, or an ~~in-out~~ in-out direction through a single valve.

²
~~12~~ (Original). A system according to claim ~~11~~¹

wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

³
~~13~~ (Original). A system according to claim ~~11~~¹

wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to the open the valves.

⁴
~~14~~ (Original). A system according to claim ~~11~~¹

wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

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⁵
~~15~~ (Original). A system according to claim ~~11~~¹

wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

⁶
~~16~~ (Currently Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first, second, and third preformed, pneumatically actuated pump stations, more than three preformed fluid flow paths, and more than three preformed, pneumatically actuated valves in the fluid flow paths, and

C1 a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to place the first pump station in flow communication with ~~any~~ at least three fluid flow paths and the second pump station in flow communication with ~~any~~ at least the same three fluid flow paths, the system being configured to simultaneously place two of the pump stations in flow communication with the blood separation device while simultaneously placing the third pump station in flow communication with a venipuncture.

⁷
~~17~~ (Original). A system according to claim ~~16~~⁶

wherein a first pump station is placed in communication with an inlet of the blood separation device while a second pump station is placed in simultaneous communication with an outlet of the blood separation device.

⁸
~~18~~ (Original). A system according to claim ~~16~~⁶

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and third pump station to direct fluid flow through the third pump station in either a direction away from the venipuncture or a direction toward the venipuncture.

⁹
~~19~~ (Original). A system according to claim ~~16~~⁶

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and pump stations to direct fluid flow through any selected pump station in either a forward

direction between two valves, or a reverse direction between two valves, or an in_out direction through a single valve.

¹⁰
~~20~~ (Original). A system according to claim ⁶~~10~~

further including a controller having a first selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a first blood separation procedure, the controller having a second selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a second blood separation procedure different than the first blood separation procedure, whereby the preformed pump stations, preformed fluid flow paths, and preformed valves in the cassette can accommodate different blood processing procedures.

¹¹
~~21~~ (Original). A system according to claim ⁶~~10~~

wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

¹²
~~22~~ (Original). A system according to claim ⁶~~10~~

wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to the open the valves.

¹³
~~23~~ (Original). A system according to claim ⁶~~10~~

wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

¹⁴
~~24~~ (Original). A system according to claim ⁶~~10~~

wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

¹⁵
~~25~~ (Currently Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first and second and third preformed, pneumatically actuated pump stations, more than three preformed fluid flow paths, and more than three preformed, pneumatically actuated valves in the fluid flow paths, and

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to place the first, second, and third pump stations in selective communication with ~~any~~ at least three fluid flow paths, the system being configured to place the first pump station in communication with an inlet of a blood separation device to supply blood to the separation device for separation into components, to place the second pump station in communication with an outlet of the blood separation device to withdraw a blood component from the blood separation device, and to place the third pump station in communication with a venipuncture to supply and return blood to a donor.

¹⁶
~~26~~ (Original). A system according to claim ¹⁵~~25~~

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and first, second and third pump stations to simultaneously supply blood to and withdraw blood from the separation device.

¹⁷
~~27~~ (Original). A system according to claim ¹⁵~~25~~

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and pump stations to supply blood to or withdraw blood from the separation device while blood is supplied from or returned to the donor.

¹⁸
~~28~~ (Original). A system according to claim ¹⁵~~25~~

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and pump stations to place a fourth pump station in communication with a source of anticoagulant for mixing with blood.

¹⁹
~~29~~ (Original). A system according to claim ¹⁵~~25~~

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and third pump station to place the third pump station in communication with a source of fluid for mixing with blood.

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²⁰
~~30~~ (Original). A system according to claim ¹⁵~~25~~

further including a controller having a first selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a first blood separation procedure, the controller having a second selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a second blood separation procedure different than the first blood separation procedure, whereby the preformed pump stations, preformed fluid flow paths, and preformed valves in the cassette can accommodate different blood processing procedures.

²¹
~~31~~ (Original). A system according to claim ¹⁵~~25~~

wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

²²
~~32~~ (Original). A system according to claim ¹⁵~~25~~

wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to the open the valves.

²³
~~33~~ (Original). A system according to claim ¹⁵~~25~~

wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

²⁴
~~34~~ (Original). A system according to claim ¹⁵~~25~~

wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

²⁵
~~35~~ (Currently Amended). A blood processing method comprising the steps of

providing a cassette containing first, second, and third preformed, pneumatically actuated pump stations, more than three preformed fluid flow paths, and more than three preformed, pneumatically actuated valves in the fluid flow paths, whereby the first pump station may be placed in flow communication with ~~any~~ at least three fluid flow paths and the second pump station may be

placed in flow communication with ~~any~~ at least the same three fluid flow paths, and the third pump station may be placed in flow communication with a venipuncture, and

placing the cassette in association with a pneumatic actuator to selectively apply pneumatic force to the valves and pump stations,

providing a first selectable control program to operate the pneumatic actuator to perform a first desired blood processing procedure using the cassette including conveying blood from the venipuncture through a separation device for separation into a first component part and a second component part, at least a portion of the first component part is collected, and at least a portion of the second component part is returned through the venipuncture, and

providing a second selectable control program to operate the pneumatic actuator to perform a second desired blood processing procedure different than the first desired blood processing procedure using the cassette including conveying blood from the venipuncture through a separation device for separation into a first component part and a second component part, at least a portion of the second component part is collected, and at least a portion of the first component part is returned through the venipuncture.

26

~~36~~ (Original). A blood processing method according to claim ~~35~~ ²⁵ wherein the first component part includes red blood cells.

27

~~37~~ (Original). A blood processing method according to claim ~~38~~ ²⁵ wherein the second component part includes plasma.

28

~~38~~ (Original). A blood processing method according to claim ~~35~~ ²⁵

further including the step of providing a third selectable control program to operate the pneumatic actuator to perform a third desired blood processing procedure using the cassette including conveying blood through a separation device for separation into first and second component parts, at least a portion of which are collected.

29

~~39~~. (New Claim) A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first and second preformed, pneumatically actuated pump stations;

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a first, second and third preformed fluid flow paths;

a first, second and third preformed, pneumatically actuated valves in the fluid flow paths;

a first pump in selective communication with the first, second and third fluid flow paths;

a second pump in selective communication with the first, second and third fluid flow paths;

a control program, and

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to the control program to direct fluid flow through any selected pump station in either a forward direction between two valves, or a reverse direction between two valves, or an in-out direction through a single valve.
